

a dielectric window supported by said container and defining a first container portion and a second container portion separated by said dielectric window;

a table for supporting the substrate in said first container portion to face said window;

a first exhaust means connected to said first container portion for drawing a vacuum in said first container portion;

a first supply for supplying a process gas to said first container portion;

a planar spiral coil for generating an electromagnetic field between said window

and the substrate supported on said table to induce generation of the plasma, said planar spiral coil being provided in said second container portion proximate said window;

a power supply for supplying a voltage to said coil;

a second exhaust means connected to said second container portion for drawing a vacuum in said second container portion; and

a second supply connected to said second container portion, comprising a gas supply pipe and a gas source for supplying an auxiliary gas to said second container portion;

wherein at least one of said first and second exhaust means are controllable to control a pressure differential across said window at a minimum value.

40. (Amended) The apparatus according to claim 37, wherein said second exhaust means is controllable according to an amount of the auxiliary gas supplied by

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said second supply to control the pressure differential across said window at the
minimum value.

59. (Amended) The apparatus according to claim 58, wherein said first supply member comprises a first supply head arranged between said window and said table and is made of dielectric, and said supply port of said first supply member comprises a plurality of supply holes formed on said first supply member and arranged to uniformly
cover the whole of the process region of the substrate mounted on said table.

100. (Thrice Amended) An apparatus for processing with a plasma a process region of a substrate, comprising:

a container;

a dielectric window supported by said container and defining a first container portion and a second container portion separated by said dielectric window, said first container portion and said second container portion each having substantially the same diameter;

a table for supporting the substrate in said first container portion to face said window;

a first supply for supplying a process gas to said first container portion;

a planar spiral coil for generating an electromagnetic field between said window and the substrate supported on said table to induce generation of the plasma, said planar spiral coil being provided in said second container portion proximate said window.

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a power supply for supplying a voltage to said coil;

a second supply connected to said second container portion, comprising a gas source and a gas supply pipe for supplying an auxiliary gas to said second container portion;

wherein a pressure difference between a pressure in said first container portion and a pressure in said second container portion is controllable below a predetermined value to reduce a load caused by the pressure difference on said dielectric window.

138. (Twice Amended) An apparatus for processing with a plasma a process region of a substrate, comprising:

a container;

a dielectric window supported by said container and defining a first container portion and a second container portion separated by said dielectric window;

a table for supporting the substrate in said first container portion to face said window;

an exhaust means connected to at least one of said container portions for drawing a vacuum;

a first supply for supplying a process gas to said first container portion;

a planar spiral coil for generating an electromagnetic field between said window and the substrate supported on said table to induce generation of the plasma, said planar spiral coil being provided in said second container portion proximate said window;

a power supply for supplying a voltage to said planar spiral coil; and